AGUA FRIA

Past Present & **Future**

Agua Fria River Corridor

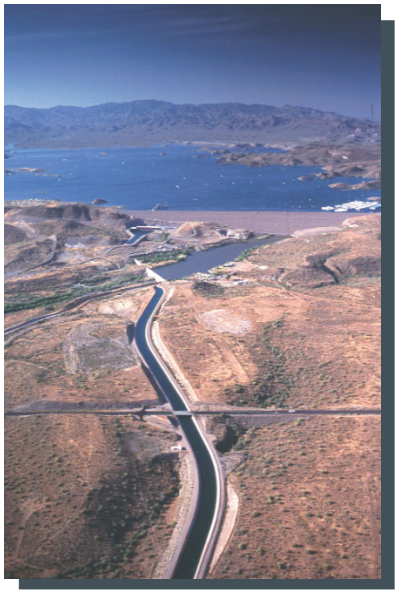
A Link to the Past...a Bridge to the Future

The Agua Fria River is a multi-faceted river corridor. Archaeological sites are reminders of ancient civilizations that once lived and prospered on the banks of the Agua Fria. Present-day development tells us that this river is still a vital part of the region's community and economy.

Growth in West Valley communities along the Agua Fria has been significant in the past decade, and this growth will continue at a rapid pace for the next several years. With this growth comes a need for managing resources with the long-term in mind...and the Agua Fria is no exception.

The Flood Control District of Maricopa County, in partnership with West Valley communities and private organizations, has developed a Watercourse Master Plan for the Agua Fria River corridor. This Plan is focused on long-term strategies to address flood protection needs of the corridor, how to incorporate multi-use recreational amenities such as trails and parks, and preserving the unique habitats found throughout the river and adjacent land. Balancing these needs with planning and development is essential.

This overview of the Agua Fria River, the Watercourse Master Plan, and Opportunities are designed to be an informative and educational look at the importance of this river corridor as a link between the history and the future of the West Valley. The Agua Fria Watercourse Master Plan is simply that...a plan. For this plan to move from being a vision to a reality will require the individual and joint efforts of citizens, government, and private corporations. Some who read this document are going to be those who most directly benefit from the implemented plan; and others are going to be the decision makers who prioritize funds within their community, organization, or corporate outreach program. Our goal is to capture and communicate the unique opportunities provided in the Agua Fria and West Valley Recreation Corridor to all of these potential partners.



CONTENTS

A River of Regional Significance 3

The Agua Fria at a Glance 4

Vision for the West Valley Recreation Corridor 6

Rivers Move 7

The Agua Fria Watercourse Master Plan 9

Looking Ahead—Opportunities, Strategies, and Recommendations 12

- Flood Protection 13
- Groundwater Recharge 15
- Trails 17
- Parks and Recreational Open Space 19
- Community Involvement 21

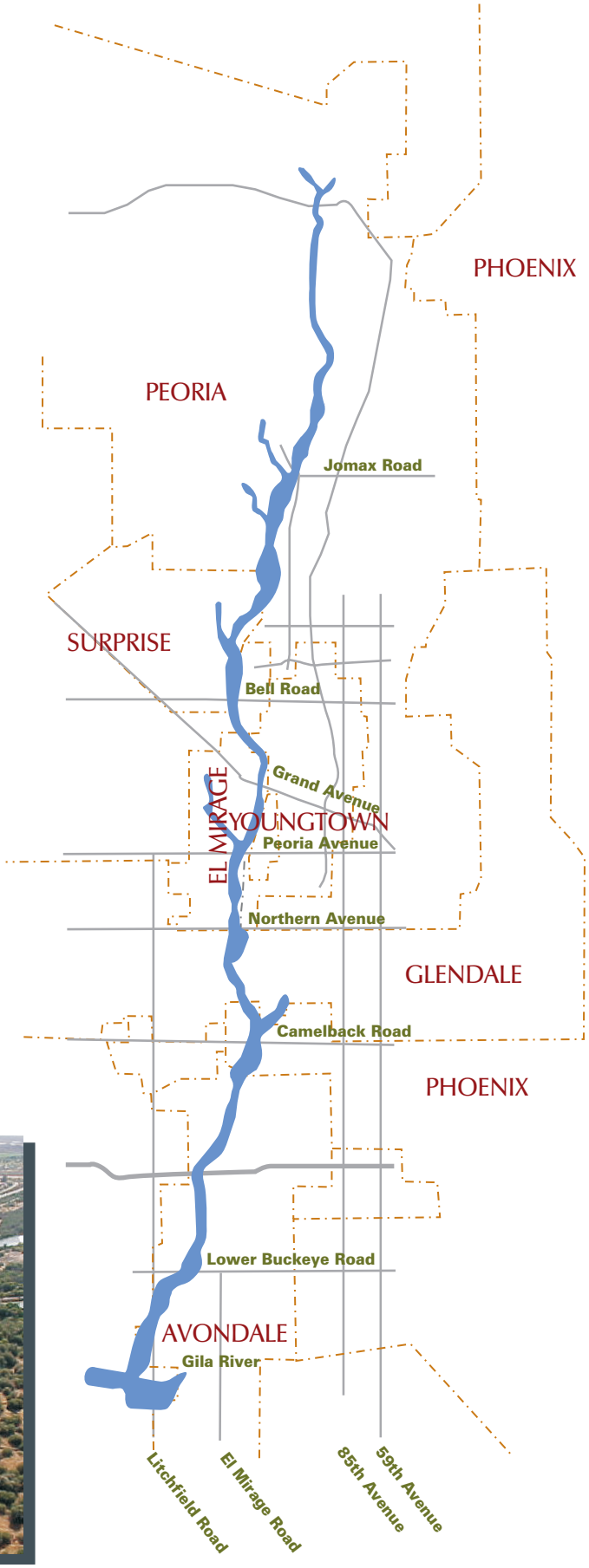
Become Part of the West Valley Recreation Corridor 22

"Rivers are roads which move, and which carry us whither we desire to go."

Blaise Pascal (1623-1662), French scientist, philosopher

The Agua Fria River is over 100 miles long. It extends from central Arizona near the Town of Prescott in Yavapai County to the confluence of the Gila River in Avondale in central Maricopa County.

The Agua Fria Watercourse Master Plan focused on a 32-mile reach from the Gila River to the New Waddell Dam. Situated in the West Valley of the greater Phoenix metropolitan area, the Agua Fria River traverses several communities, including the Cities and Towns of Peoria, Glendale, Surprise, El Mirage, Youngtown, Phoenix and Avondale, and unincorporated areas of Maricopa County.



A River of Regional Significance

The History, Evolution, and Importance of the Agua Fria

The Agua Fria is a historic river corridor that has helped to shape the West Valley. Its role in fostering community and economic growth in the region is as important today as it was in prehistoric times. Archaeological findings and sites throughout the river corridor indicate that the Agua Fria and surrounding land has been a source for water and land transportation, farming, homesteading, and economic sustenance for ancient cultures and modern communities alike.

The Hohokam Indians are perhaps the earliest known settlers of the Agua Fria River. Descendants of the Hohokam include the Pima, Maricopa, and Yavapai Native American tribes. The Hohokam were agriculturists that used the waters of the Agua Fria for irrigation and looked to the land surrounding the Agua Fria as a valuable resource for hunting and foraging.

The first modern settlements along the Agua Fria in the mid-1800s were stagecoach and mine supply stops—stage and wagon routes were valuable links between mining, agricultural, and population centers in central Arizona. Through the mid-1900s, agriculture and ranching were vital parts of the economic base for the communities near the Agua Fria. The Waddell Dam was constructed in 1927 and provided much needed storage of Agua Fria waters to allow for irrigation of West Valley farmlands. As important as this dam was for water supply, it forever changed the downstream character of the Agua Fria River.

Even today, land uses along the Agua Fria are varied, and include residential and commercial property developments, open space recreation areas, sand and gravel mining, farms and orchards, as well as undeveloped desert.

The flat, alluvial floodplains along portions of the Agua Fria make for ideal farmland along the river banks. Like the ancient Native American tribes and early settlers in the 1800s, present-day farmers use canals and irrigation systems to harness the river's flood waters.

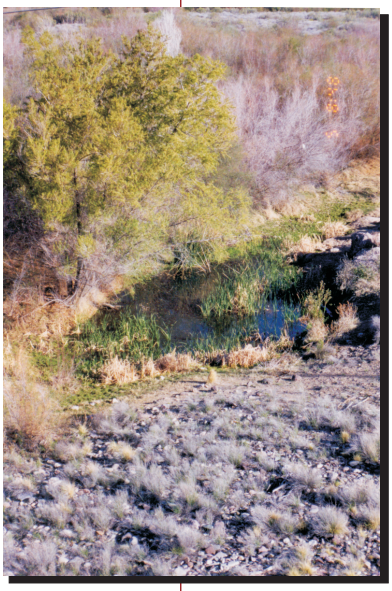
Petroglyphs like the ones shown here can be found throughout the Agua Fria corridor. Some of these petroglyphs date back to 800-1200 A.D. Many of these rock art images depict water, animals, birds, and fish, demonstrating the significance of the environment to the Hohokam and other Native American tribes that settled near the river.

The Agua Fria at a Glance

Situated in the desert environs of central Maricopa County, the Agua Fria River corridor offers a diverse combination of open space, vegetation, desert habitat, varied rock and land formations, community developments, industrial uses, and recreational spaces.

South of Lake Pleasant, where seepage water enters the Agua Fria from the New Waddell Dam almost year round, there is substantial vegetation along the river including such native varieties as Cottonwood, Mesquite, and Palo Verde. This dense vegetation also is found near the confluence of the Agua Fria and Gila Rivers in the southern portion of the corridor, where water is abundant. As a valuable source for water, food, shelter, and shade, these areas of the Agua Fria promote wildlife habitats for birds, reptiles, aquatic life, and mammals.

Other areas of the river corridor are much more characteristic of the "desert" environment. In the northern reaches of the study area, there are localized areas of water flow, usually as a result of run-off from storm drain channels and canals. The northern reaches also are surrounded by rocky hill slopes, Saguaro cactus, and Palo Verde that are typical of the Sonoran desert, creating a dramatic background for the river corridor. There is virtually no urbanized development in this area.



Through the central and lower reaches, the Agua Fria also exhibits much more of a desert quality due largely to the limited presence of water in the riverbed and the broad floodplains. The terrain is flatter than other sections of the river, and very little vegetation, mostly native desert shrubs, is scattered throughout this portion of the Agua Fria corridor. Short but intense rainfall can cause flash-flood conditions in this area that can alter the channel flow patterns and remove what little vegetation exists.

Looking south down the Agua Fria River from Lake Pleasant. Water from the New Waddell Dam provides for year-round water in this portion of the river, which promotes diversity of vegetation, wildlife, and recreation opportunities. The lower reservoirs, as shown in this photo, are part of normal dam operations.

Residential and industrial areas also can be found along the Agua Fria riverbanks, primarily in the central and lower portions of the corridor from Bell Road south to Lower Buckeye.

Archaeological evidence of pre-historic communities is common throughout the corridor, and present-day urban development ranges from residential communities, parks and golf courses, to industrial uses such as sand and gravel mining. Some of this new development has encroached into the floodplain of the Agua Fria River, leaving it prone to damages from river movement or in some cases flooding. Bridges, levees, and railroad crossings are other signs of urban developments along this portion of the Agua Fria.

The dense vegetation and riparian habitat found at the confluence of the Gila and Agua Fria Rivers demonstrates the landscape character that was likely abundant throughout the corridor in centuries past.

Further south, where the Agua Fria meets the Gila River, the flat land and rich alluvial soils make for fertile farmland. These lands are somewhat susceptible to flooding from either the Agua Fria or Gila Rivers. Because of treated effluent and irrigation return waters, there is abundant water at the confluence, which has led to the establishment of riparian vegetation and rich habitats.

The present-day residential development and other signs of urbanization along some portions of the Agua Fria provides a stark contrast to the many archaeological sites that have been documented near the river.

Agua Fria and the West Valley Recreation Corridor

Agua Fria Watercourse Master Plan and the New River Lower Agua Fria Multi-modal Corridor Study

The Agua Fria Watercourse Master Plan is one of two key studies that comprise the West Valley Recreation Corridor—a long-term vision for preserving and enhancing the Agua Fria and New River corridors.

In August 1998, John F. Long and other West Valley community leaders met to explore the potential of creating a recreation corridor along the West Valley rivers...one that would provide diverse recreation opportunities and preserve the cultural history and desert habitat of the river corridor. More importantly, this vision was aimed at balancing these opportunities with sound flood protection strategies to protect nearby communities from floodwaters. Although the Agua Fria River currently has only limited flooding problems, minor concerns today could lead to costly flood control systems in the future.

From this vision came two important studies in the West Valley: the Agua Fria Watercourse Master Plan, and the New River and Lower Agua Fria Multi-modal Corridor Study.

The Flood Control District of Maricopa County led the efforts of the Agua Fria Watercourse Master Plan. In partnership with regional agencies, West Valley communities and a team of engineering and planning specialists, this Master Plan looked at both traditional and non-traditional flood control alternatives along the 32-mile river corridor. Some of the recreation uses, such as paths and trails, parks, and open spaces also can serve as alternatives to single-purpose flood control measures, thus providing protection from dangerous floodwaters in addition to valuable recreational amenities for the West Valley.

The Maricopa Association of Governments oversaw development of the New River and Lower Agua Fria Multi-modal Corridor Study. There are some similarities between the two projects, and the New River study resulted in a master plan of interconnecting trails, paths, and other travel routes with the ultimate vision for multi-modal, non-motorized corridors connecting residential areas, parks, schools, recreation areas, and businesses.

Together these two studies have provided a foundation and laid out a road map for implementing this landmark amenity in the West Valley.

Rivers Move

February 1980. This photo of the Bell Road Bridge near Sun City shows the impact of localized flooding in the Agua Fria.

The West Valley is the adopted home for many people who probably have not yet experienced the force of a major flood in the desert southwest. Although many people understand that a river can flood, it is likely that they have not experienced that rivers move. Perhaps this is because they have lived in other locations where rivers moved only slightly, or perhaps they haven't seen any noticeable changes in the area's riverbanks and see them as permanent land forms.

History has proven that riverbanks can and will move—even up to 1,000 feet or more, as experienced on the banks of the Agua Fria during a severe flood in the late 1970s. This movement, known as "lateral migration" is not limited to the Agua Fria River. It can be experienced on any major river in the desert southwest. Human influences in the floodplain and on the watershed certainly can accelerate this movement, but even without these factors southwest rivers will move.

Development Standards and Flood Protection

Current standards for development tend to focus on development practices that guide how one builds in the floodplain, rather than on the impacts a development might have on other properties. Local and state standards are more restrictive than federal standards, but still follow the premise that as long as the central portion of the river, the floodway, is reserved for flood flows, then development is allowed.

These essential standards do not properly account for the impacts to other properties. Filling and developing the outer portion of the floodplain forces the floodwaters to cross stream onto other properties, which causes floodwaters to back up and be deeper on upstream properties. In many cases, an additional few inches or even one foot of water might not cause any additional damage; in other cases, it could be the difference in a home being inundated, or a property that is outside the floodplain to be considered flood prone.

The Agua Fria Watercourse Master Plan is promoting a concept of "no adverse impact"—in other words, a strategy that does not promote the creation of negative flood impacts on other properties.

Is Flooding a Problem for the Agua Fria?

Acclaimed geographer Gilbert F. White once stated that "...floods may be an act of God, but flood damages generally are an act of man..."

Dr. White's observation is somewhat of an admonition for the future of the Agua Fria River. Development along the Agua Fria River is recent and in limited areas, so flood damage potentials are currently low; however, in the past, flood damage led to the buy-out of one flood-prone community and required replacing several damaged bridges.

Overall, the potential for serious damages occurring from a moderate to large flood of the Agua Fria River is remote, with just a few local exceptions. Isolated development along the Agua Fria, the early mapping of a floodplain, enforcement of floodplain development regulations, levees, and raising of the New Waddell dam all contribute to the relative safety of the corridor; however, if development was to occur following current floodplain development regulations or current practices related to sand and gravel mining, damages could be significant.

The Effects of Lateral Migration

Lateral migration is essentially the severe bank erosion or the lowering or raising of the river channel bottom. By their nature, rivers want to move sediment. During a flood, a river is constantly trying to adjust the amount of available sediment with the capacity it has for moving the sediment. The effect of lateral migration is that the river, and its ability to move sediment, and where it moves sediment is changed—sometimes this change can be drastic. This very real hazard can lie dormant for years, and then in a single flood event, a river can erode and completely destroy homes and businesses.

Dams and mining activity in the Agua Fria have resulted in less sediment entering the river than the river can move. The river initally responds by lowering the channel bottom, and ultimately eroding the channel banks.

By identifying a Lateral Migration Hazard Zone, specific areas of a river that are hazard-prone can be mapped. This process will assist communities, agencies, and builders in identifying risks and proactively planning so that construction or development will avoid these areas. Another benefit of identifying these zones is to ensure that development does not transfer the erosion hazard to other properties.

1977

1985

These dramatic photos of the Agua Fria (Dynamite Boulevard to Hatfield Road) illustrate just how much the Agua Fria and the floodplain have "moved" over the past few decades. These changes can largely be attributed to the 1979 flood.

In-Stream Sand and Gravel Mining in the Agua Fria

Mining has played an important role in defining the economy in and around the Agua Fria watershed and the West Valley. Active sand and gravel mining has been taking place within the Agua Fria River channel and its floodplain since at least 1949. Increased urbanization along portions of the river corridor has led to an increasing demand for concrete and rock products for residential and commercial development, and the construction of roads, bridges, and flood control structures. The quality and accessibility of aggregate materials in the floodplains made them an ideal source for mining activities.

In-stream sand and gravel mining, while an important part of the regional economy, ultimately leaves a void in the riverbed. Excavating within the river narrows and lowers the channel, which can have long-term erosion effects and impacts river function, other properties, bridges, and utilities.

The Agua Fria Watercourse Master Plan

Shaping the Future of the Agua Fria River Corridor

The West Valley of today is an area under significant transition. Twenty years ago, the West Valley was a collection of small rural communities separated by miles of farmland. Today it is a region that is undergoing massive growth, and in another 20 years, the area will be extensively developed.

Community leaders are faced with a challenge: with West Valley communities growing at a rapid rate, can the continued growth be balanced in a way that plans for development, community service, safety, and preservation?

What is certain is that a plan and a vision will give the Agua Fria corridor a better chance at achieving its full potential. West Valley leaders are united in the vision that the Agua Fria River can be managed as an overall community asset by enhancing recreational opportunities and meeting multiple use demands.

If the West Valley is to achieve the vision presented by its leaders, it is necessary to put plans in place that will turn the dream into a reality. The Agua Fria Watercourse Master Plan is a tool that will guide the development of the Agua Fria River corridor now and for future generations.

Similar River Management Programs

Providing flood control while promoting recreation—is it possible? The Trinity Trails Advisory Committee in North Central Texas, and the Lackawanna River Corridor Association in Pennsylvania are just two examples of successful multi-purpose river management programs.

Trinity Trails, Texas

In early 1996, the Trinity Trails Advisory Committee adopted a proposed alignment for most of the 250-mile backbone of the Trinity River in North Central Texas. This Committee promotes a continuous public access recreation corridor with a multi-use trail for hiking, biking, and equestrian uses along the Trinity River Corridor.

Major trail segments are already in place, and several others have received state transportation enhancements project funding. The Mayor of Dallas stated that the Trinity Trail System should be "...big, bold, and magnificent... the greatest legacy we could leave our children."

Lackawanna River Corridor, Pennsylvania

The Lackawanna River Corridor Association (LRCA) is striving to achieve the same results with the 40-mile Lackawanna River Heritage Trail, creating opportunities for hiking, biking, cross-country skiing, and accessing the river for fishing, canoeing, kayaking, and nature study. Several sections of the trail are open, and the LRCA is promoting further restoration of the Lackawanna River and its watershed resources through the active participation of citizens.

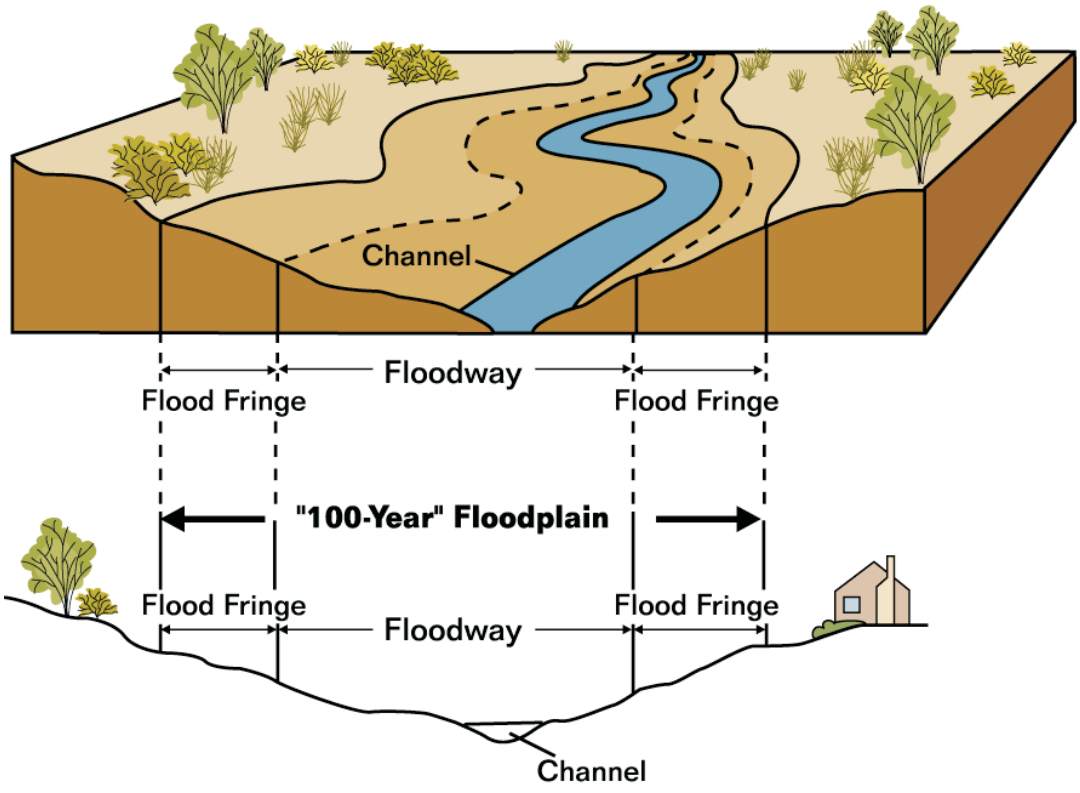
Floodplain Management and the Agua Fria

The Flood Control District of Maricopa County and each of the municipalities along the Agua Fria River have floodplain management programs in place. A floodplain is nothing more than the land area that would be inundated for a given flow rate in the river.

For purposes of floodplain management, the 100-year, or 1% flood, is used as the appropriate sized flood. Within the 100-year floodplain, each jurisdiction has standards in place to guide how new development is to occur within the floodplain. The central portion of the river is called a floodway, where channel capacity is preserved and development is very limited. The outer portion of the floodplain, sometimes termed the flood fringe, is an area where development can more readily occur, but the lowest floors for new construction must be elevated one foot above the regulated flood level. While these standards certainly protect the proposed development, they do not effectively consider how these development practices might impact other properties.

The Agua Fria Watercourse Master Plan evaluated standards that will reduce the potential impact that others might experience by either forcing flows cross stream, or by taking actions that would either increase the flood stage or flow rates.

The Floodplain with Floodway



Comprehensive Approach to Issues, Challenges, and Future Development in the Agua Fria Corridor

This multi-faceted Plan looked at several critical issues affecting the corridor, including erosion, changes in the floodplain and watershed, habitat, vegetation, current uses, future uses, and opportunities. The Flood Control District, local agencies, and the study team were tasked with several objectives as part of the Watercourse Master Plan, including:

- Identifying severe bank erosion hazards, and developing management strategies to ensure that future development will avoid these impact areas.
- Developing strategies aimed at preserving and restoring the river vegetation and habitat that are essential to the overall character of the Agua Fria.
- Solving flooding problems through a mix of traditional structural solutions, as well as non-structural flood control solutions.
- Evaluating current community-based recreational plans, and recommending additional parks, trails, and other facilities that will provide for recreational areas and links to communities.
- Developing management guidelines for sand and gravel mining that will begin to isolate these pits from flood waters, and isolate flood-related impacts to these sites.
- Outlining recommendations for equitable floodplain management standards that consider the impact one property owner might have on another, and taking steps to restrict or mitigate for that impact.
- Identifying groundwater recharge opportunities that can be implemented in a visually attractive manner.

Project Partners

The Agua Fria Watercourse Master Plan has been a collaborative partnership among regional agencies and West Valley communities. Continued support from these project partners is vital to achieving the long-term vision of the Agua Fria River Corridor and West Valley Recreation Corridor:

Flood Control District of Maricopa County
Maricopa Association of Governments
City of Avondale
City of El Mirage
City of Glendale
City of Goodyear
City of Litchfield Park
City of Peoria
City of Phoenix
City of Surprise
Town of Youngtown
Communities of Sun City and Sun City West
Westmarc
Valley Forward
Arizona Trails Association

"In the matter of floodplain management, most people agree that some combination of structural and non-structural methods are probably a better approach than the previous complete reliance on dams and levees."

Luna B. Leopold, 1994
Renowned Researcher in Fluvial Geomorphology

Looking Ahead

Opportunities, Strategies, and Recommendations

The Agua Fria Watercourse Master Plan has resulted in a long-term vision for this important river corridor in the West Valley. Arriving at this vision required input at several stages of project development from the West Valley communities who will benefit the most from this project. Without the support from these communities and their leaders, this vision for the Agua Fria would remain just that...a vision.

Developing a long-range, multi-use plan for the Agua Fria meant looking at the river corridor from several perspectives. Flood safety is a primary concern for residents near the corridor as well as the Flood Control District, and proactive flood protection measures were a high priority of this Master Plan.

Integrating flood safety with other uses, including water recharge facilities, recreational amenities such as trails and parks, and developing and preserving unique habitats along the river corridor was a significant part of the Agua Fria Watercourse Master Plan. The opportunities identified during the development of the Master Plan are focused on multiple uses of the corridor, and they will require a combination of traditional and innovative strategies for successful implementation.

The Master Plan went a step beyond just a corridor-wide vision, and identified specific needs and project recommendations in each of the jurisdictions that are part of the river corridor. Community support for the vision for the Agua Fria and the West Valley Recreation Corridor continues to be strong.

It is widely recognized that this kind of undertaking is a long-term, incremental process. By providing jurisdictions with specific action items for their "pieces" of the corridor, they can use these recommendations to develop a plan that fits the needs of their specific communities. This up-front planning will allow agencies to incorporate the corridor projects into their programming processes, proactively partner with other jurisdictions and seek funding sources, both public and private, and perhaps mainstream some of the corridor projects into current or future capital improvements in their town or city.

The following pages provide an overview of some of the key multi-use opportunities along the Agua Fria corridor, as well as strategies for successfully moving the vision forward to reality.

Flood Protection

Traditional and Non-traditional Flood Protection Methods for the Agua Fria

The Flood Control District's primary concern is flood protection for residents as well as property in Maricopa County. For more than 40 years, the District has been proactive in implementing structural flood control measures, including dams, flood control channels, and levees. In recent years, the District has adopted new approaches to flood control, and recognizes that single-purpose, structural flood control methods might not always be the only solution...that the objectives of flood control and protection could be achieved as part of multi-use facilities that also could provide recreation and restoration.

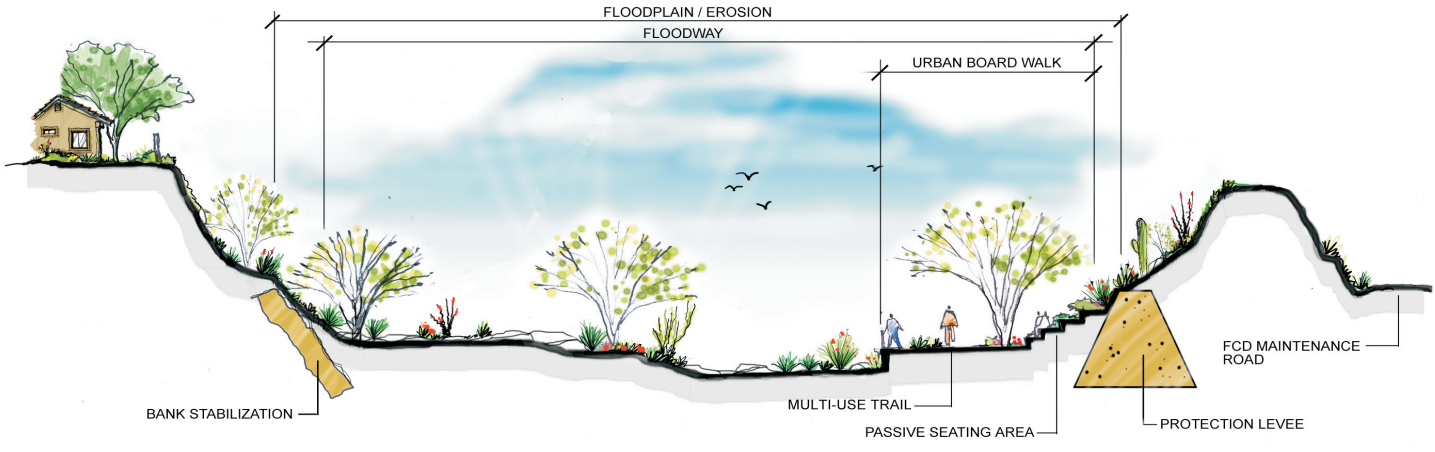
Floodplain management strategies that can provide safety and protection, support multiple uses, minimize impacts on nearby properties, and be cost effective are often the result of a combination of strategies. These include traditional structural methods as well as non-structural alternatives. Using this approach, the District has developed a plan that balances the flood protection needs with the natural and recreational functions of the watercourse.

To meet the flood protection needs of the Agua Fria, it was important to understand the multiple use opportunities for the river and develop a flood protection system that would work with those needs. Early on, it was clear that community leaders wanted a strategy, or combination of strategies, that would enhance the recreational opportunities of the corridor, and not detract from the natural features of the watercourse.

Structural Flood Control Measures

Structural flood control alternatives refer to dams, levees, fill, bank protections, channelization and grade control structures. These traditional methods of flood control are designed to protect existing and future residents from a specific flood event, usually a 100-year flood, and the possible damages that could arise with potential lateral migration of the river. They are intended to help resolve flooding or erosion problems in site-specific locations. In some cases, a structure might be the only reasonable and effective way to protect against potential flood damages.

Structural, Multi-use Alternative



Structures are a big investment for the initial construction as well as longer-term maintenance requirements. The cost/benefit of structural solutions also must consider the fact that they are typically single-purpose structures.

For the Agua Fria, structural solutions were evaluated and recommended for specific sites along the river corridor. These include grade stabilization structures to limit channel down-cutting (which could affect transportation networks and utilities), and two areas of bank stabilization at Bell Road and Grand Avenue.

Non-Structural Solutions

Non-structural flood control alternatives go beyond the traditional structural tools to protect against flooding and damage. Policies, standards, zoning ordinances, land use planning, property acquisition, vegetation and drainage management can be used as part of a comprehensive non-structural flood control strategy.

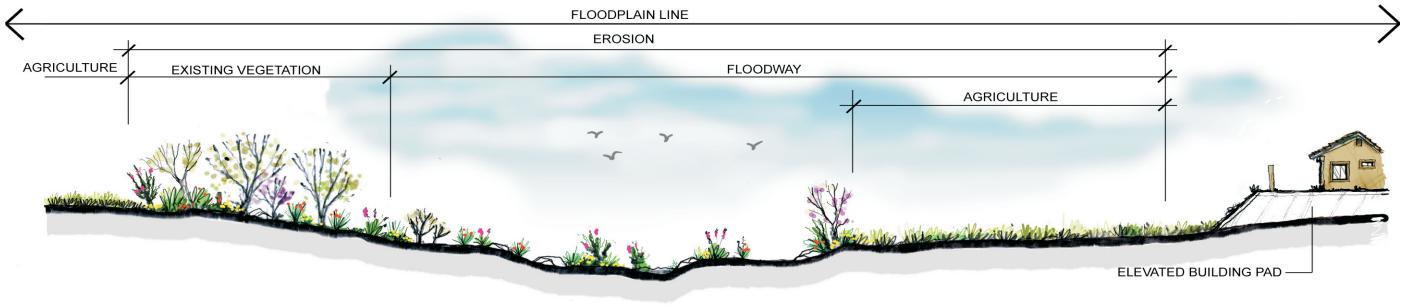
The non-structural approach offers several advantages, including substantial cost savings over traditional structural methods in that the initial and long-term maintenance costs are generally low. Furthermore, the visual integrity of the river and surrounding terrain are left intact and in some cases enhanced.

As a general approach, the District has opted for a non-structural flood protection solution for the Agua Fria River. This approach was recognized as being more conducive to the river's natural and beneficial floodplain functions as well as allowing for multiple uses within the corridor.

The District has proposed an aggressive strategy of floodplain management that includes managing to a "no adverse impact" standard. Proposed standards include:

- Enforcing a stringent watershed runoff policy which mitigates the impact of new development;
- Adopting and managing an erosion hazard zone;
- Conserving in-channel flood storage; and
- Policies that would limit offsite impacts associated with constructing in the floodplain, management of aggregate mining activities and the implementation of flood safety protocols.

Non-Structural Alternative



Groundwater Recharge in the Agua Fria

Groundwater plays a significant role in West Valley water supplies. It is an important natural resource for domestic drinking water, irrigating agricultural fields, and for industrial uses. Pumping has depleted the groundwater system through much of the West Valley, including those areas around the Agua Fria River below the New Waddell Dam. This decline in water levels means limited water supplies, water quality degradation, and land subsidence, which is a "sinking" or flattening of the land.

Depletion of groundwater throughout the state of Arizona led to the creation of the Groundwater Management Act and the formation of Active Management Areas. The West Valley is within an Active Management Area, and is under stringent guidelines to manage the amount of groundwater pumped from the aquifer.

Replenishing this resource is of vital importance to meet the current and future water needs of the growing West Valley. Through groundwater recharge, water would be added to an aquifer system, either by infiltrating water from the surface, or by injecting water into the subsurface via wells. The Agua Fria Watercourse Master Plan evaluated the potential development of groundwater recharge facilities along the Agua Fria River corridor. Recharging of excess waters to the aquifer will benefit the communities by allowing them to pump the recharge water for future use.

The Agua Fria River corridor from Lake Pleasant to roughly Indian School Road is being considered for recharge projects by multiple entities. There is a definite need to replenish the aquifer in the West Valley, and overall, conditions are favorable for groundwater and effluent (wastewater) recharge activities.

Three large-scale recharge projects are planned within the Agua Fria channel. They are:

- Central Arizona Project's (CAP's) Agua Fria Recharge Project;
- Sub Regional Operating Group's (SROG's) linear effluent recharge project; and
- Salt River Project's New River-Agua Fria Underground Storage and Recovery Project (NAUSRP).

In addition to these large-scale planned projects, there are several smaller projects in or adjacent to the corridor which include recharge activities in Peoria (Beardsley), Sun City West, Glendale, and Avondale.

Photo courtesy of Central Arizona Project

Central Arizona Project Agua Fria Recharge Facility

The groundbreaking in May of 2001 formally kicked-off CAP's Agua Fria Recharge project. This unique recharge effort by Central Arizona Project will be the first in the state to use both streambed and infiltration basins in one recharge facility. CAP water from the Colorado River will be delivered to the channel directly from the CAP siphon. Some of the water will be recharged within the channel of the Agua Fria. The remaining water will then flow five to six miles downstream and be delivered to a series of ten basins for recharge.

The CAP Agua Fria Recharge Project is being showcased as a State Demonstration Recharge Project for the underground storage of Colorado River water.

If all of the projects under consideration are constructed, much of this river corridor will flow virtually year-round, which would provide more stable water supplies to promote growth and development of the West Valley, as well as enhance the recreational and wildlife habitats near these recharge sites.

Integrating Recharge with Recreation

"Recreational uses" is hardly a notion that comes to mind when one thinks of water recharge. To look at water recharge facilities, often they are very industrial in appearance. But because of the increased water levels provided by these recharge activities, there tends to be increased riparian habitat and vegetation. This enhances the overall visual character of the nearby landscape and provides refuge and abundant food and water resources for birds, mammals, and aquatic life.

Recharge areas along the Agua Fria could be developed and constructed in a way that is consistent with floodplain management strategies as well as be aesthetically pleasing. These recharge facilities also can lend themselves to multiple uses, such as development of a park or nature study area near the site.

The Avondale recharge pond, shown in the photo above, is characteristic of the rich vegetation and lush habitat that can be found near recharge and retention areas with near-year-round water flows. These sites are ideally suited for interpretive recreational areas that will promote wildlife and nature study in these unique riparian sections of the Agua Fria River.

Trails – Taking the Scenic Route

Trails are an integral component of the vision for the Agua Fria and for the West Valley Recreation Corridor. Currently, there are no trails that go the length of the corridor, but there are a few existing trails, including those in private developments, that provide access to points along the Agua Fria and that allow for crossing the river. Several trails are planned as part of the New River Multi-modal Corridor effort. Linking these trails with those planned for the Agua Fria will create a network of recreational paths among these river corridors.

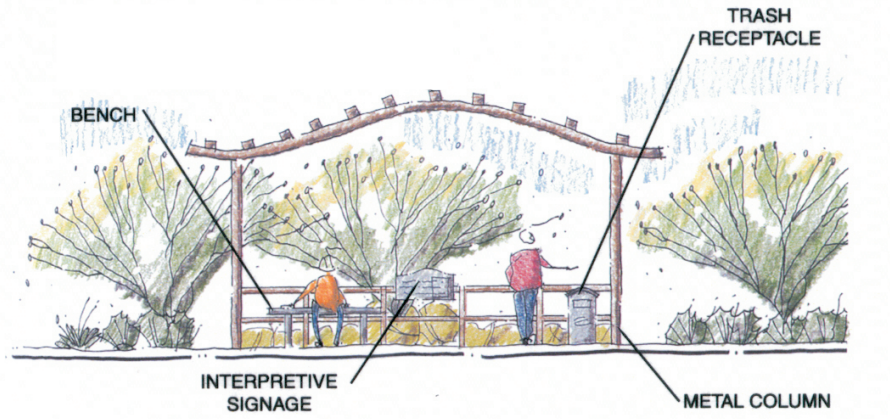
Shared-use trails along the river banks and in nearby areas will provide corridors for hiking, biking, rollerblading, and other activities, as well as connect parks, preservation areas, picnic sites, historical sites, and scenic viewpoints along the Agua Fria. These trails also can link to nearby streets and bike routes. An in-river trail along typically dry portions of the Agua Fria could be used for horseback riding and to connect equestrian facilities and staging areas along the corridor.

Trailheads are links between trails. Major trailheads along the Agua Fria could include a variety of facilities such as parking for vehicles and horse trailers, directional signs, water, shade and picnic areas, and restrooms. Interpretive areas with kiosks could provide information about the history of the Agua Fria, its diverse habitat, desert ecosystem, and cultural significance. Smaller trailheads would serve a similar purpose with parking areas, access to trails, and directional signage. Locating these trailheads near parks or other recreation areas would provide easy access to trails for hikers, bikers, equestrians, and other users.

Importance of Trails in Arizona

- 96% of Arizonans believe that trails benefit their community
- 92% of Arizonans agree that trails enhance their quality of life
- 82% of Arizonans believe that trails benefit Arizona's economy
- Arizona rates as one of the top states in the nation for the number of people who hike, backpack, bicycle, or ride horses
- 73% of Arizona residents want trails designed for multiple activities

Source: *Arizona Trails 2000 Survey*, Arizona State Parks Department and the Trust for Public Lands



Trail Concepts:

Multiple-use trails for hiking, biking, horseback riding, and nature study. Trails can provide the link between parks, historic sites, recreational areas, and communities along the Agua Fria.

Parks and Recreational Open Space

The development of parks and other recreation facilities near the Agua Fria has increased with the growing population in the West Valley. Neighborhood, community, and regional parks can be found along both sides of the Agua Fria River and within close proximity in nearby cities as well as private developments. The number of developed and planned parks near the Agua Fria emphasizes the importance of these recreational amenities to the West Valley communities.

Some of these existing and planned park areas include sports fields for baseball, soccer and football, picnic areas, gardens, ramadas, restrooms, and equestrian trails and facilities.

Two new parks were recommended in the Agua Fria Watercourse Master Plan—at the El Mirage Treatment Plant and at the McMicken Dam Outfall. With water present year-round, these locations offer lush vegetation and unique landscape character found in only a few places along the corridor.

Coldwater Park in Avondale. This community park on the west bank of the Agua Fria includes baseball and softball fields, playground equipment, and volleyball courts. The park was named for the adjacent Agua Fria River–"agua fria" is Spanish for "cold water".

In addition to their recreational value, parks provide a unique opportunity to educate and highlight facets of the cultural, economic, and historic importance of the Agua Fria. As with the trails, interpretive areas containing informative facts about the history, habitat, and the river's multiple uses—such as sand and gravel mining, canal systems for irrigation, and current water recharge practices—could be integrated with the parks, archaeological sites, or other landmarks. Calderwood Butte and Casa de las Piedras are ideal for these types of interpretive, educational areas.

Maricopa Lake Park in Youngtown.

Park Concept:
McMicken Dam Outflow Area

Park Concept:
Avondale Recharge and Wetland Area

Community Involvement

The Key to Success

Community involvement is key to the long-term success of the vision for the Agua Fria corridor. Events such as Trails Tours (above) and the Arbor Day celebrations (right), bring West Valley communities together to promote awareness and education about the river, the importance of habitat preservation, and the potential for multiple uses along the river corridor.

West Valley communities have been actively involved in the planning process for the Agua Fria Watercourse Master Plan. From attending public meetings to participating in Trails Tours and Arbor Day celebrations, support for the Plan and the recreational opportunities that it provides continues to grow.

To make the vision for the Agua Fria and West Valley Recreation Corridor a reality, it will require community support, enthusiasm, and involvement. From local agencies and elected officials, to residents, community coalitions and business owners, this support will ensure that the Agua Fria will be a regional amenity for generations to come.

Friends of the West Valley Recreation Corridor

The Friends of the West Valley Recreation Corridor is a group of influential citizens and organizations, led by Westmarc and Valley Forward, that have come together to support the West Valley Recreation Corridor and shepherd it through implementation.

This group will serve as advocates at legislative meetings, council and commission meetings, and public events. It also will serve as a guiding force for making the plans a reality and identifying grant funding opportunities to support project implementation.

Awareness through Education

Children have embraced conservation and restoration of the river for years. Teachers are organizing school field trips to help plant trees, study the desert wildlife and vegetation, and see, first-hand, archaeological finds "in the field." The diverse habitats along the Agua Fria offer unique opportunities for studying the effects of long-term habitat and vegetation enhancements. Celebrations commemorating Arbor Day, National Trails Day, and other events that focus on recreation, the environment, or Southwest history will allow communities to get involved and learn more about the many facets of the Agua Fria—its past, present, and future.

A Hands-On Approach to Community Involvement

Similar to Adopt-a-Highway or Adopt-a-Street programs, an Adopt-a-Trail or River Rescue program could be established. Such programs would encourage local schools, organizations, businesses, families or even individuals to volunteer their time and energy to keeping the Agua Fria corridor clean, safe, and in good repair. Organizing groups to help pick up litter and report maintenance needs along their "adopted" section of the river will foster community pride in this West Valley amenity.

Become a Part of the West Valley Recreation Corridor

Implementing an amenity like the West Valley Recreation Corridor is no small task. Over the next several years, West Valley communities, leaders and decision makers, regional agencies, private organizations, and residents will be working toward making the vision for the Agua Fria and the West Valley Recreation Corridor a reality.

Support for the recommendations for the Agua Fria and West Valley Recreation Corridor as a whole will need to come from many levels. Residents and citizen advisory groups will need to work with local decision makers and agencies to ensure that the recommended projects, policies, and planning requirements are in place and continue to be incorporated into local capital improvement programs. Promoting the Agua Fria as a cultural and recreational destination through community events and educational tours will continue to emphasize the significance of the river's important role in the West Valley's history and future.

West Valley communities have a strong history of working together, which provides a solid, grassroots foundation for the long-term commitment that will result in a landmark recreation corridor amenity.

To find out more about the Agua Fria Watercourse Master Plan, the West Valley Recreation Corridor, and ways that you can get involved, contact:

FRIENDS of the WEST VALLEY RECREATION CORRIDOR

Friends of the West Valley Corridor
c/o Valley Forward
3800 North Central Avenue
Suite 220
Phoenix, Arizona 85012
Telephone: (602) 240-2408

Flood Control District of Maricopa County

Flood Control District of Maricopa County
Planning Division
2801 West Durango Street
Phoenix, Arizona 85009
Telephone: (602) 506-1501

WEST VALLEY RECREATION CORRIDOR

AGUA FRIA WATERCOURSE MASTER PLAN

Flood Control District of Maricopa County

Kimley-Horn and Associates, Inc.